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THE CIRCUMFERENCE OF GEOGRAPHY*

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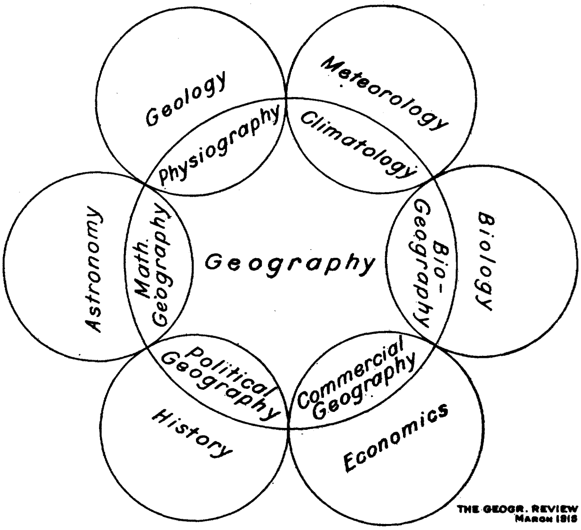

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FIG. 1—This diagram expresses the fundamental conception that sciences overlap and that each one of the specialized phases of geography belongs equally to some other science. Such a diagram will be helpful if not construed too strictly. In a loose way the central residual part of the circle may represent regional geography. The diagram fails to show that physiography, climatology, etc., enter into regional geography by being treated with respect to their distribution instead of with respect to system and type. The number of overlapping sciences may be made greater or less according to the purpose in hand. [Cf. with the similar diagram in H. R. Mill's " The Realm of Nature" showing the relation of physiography to the sciences upon which it is dependent.—EDIT. NOTE.]

It is a peculiarity of geography to be always discussing and debating its own content—as though a society were to be organized for the sole purpose of finding out what the organization was for. This is not said by way of criticism; indeed this very paper is a continuation of the same discussion. The situation is, however, unique and can scarcely fail to be remarked by on-lookers from other sciences, who have no such doubts as to what their subjects are about.

The basis of this constant concern is not greed but *fear.* Geography wages no aggressive wars and seems to covet no new territory. In certain quarters it bristles with defense; but it is mainly concerned with purging its own house rather than spreading its borders. To rule out "what is not geography'' would seem from the discussions to be much more important than to find and claim geography where it has been passing under other names. The constant apprehension is that by admitting alien subjects we shall sooner or later be absorbed by a foreign power and lose our identity.

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* Presidential address at the fourteenth annual meeting of the Association of American Geographers, Baltimore, December 27 and 28, 1918.

It is probably unnecessary to point out that this is purely an American attitude. Geography of the European brand has no such concern for its own purity or fear of being absorbed. Scholarly geographic treatises from Europe may contain long lists of botanical names, or geological descriptions, or chapters which might be transferred bodily to monographs on economics or history.

To many American geographers this would seem like betraying their cause and selling their birthright. There is an implied dread that if geography accepts the work and uses the language of other sciences, geography itself will be dismembered and its remains be divided among its competitors. It is worth while to consider this possibility, and a rough plan is here submitted for a partition of geography's domain.

Suppose geography were dead, what would be left?

Proposed Partition of Geography's Domain

Geology might easily take over topography, including its genetic treatment, which is physiography—in fact, has never given it up. So also botany has never relinquished plant geography and ecology. Zoölogy does not forget the distribution of animals. Agriculture is now so specialized and so firmly entrenched that crops and their distribution, and their relation to all manner of factors, are studied without concern for geography. Meteorology has official standing in all civilized countries and could take care of climatology if geography were bankrupt. Moreover, meteorology is commercially employed and so has the satisfaction of being good for something beside being merely good ''to teach.'' So it is not afflicted with heart searchings regarding its own content. Mining is abundantly treated by geology and economics. The geographer only borrows from these, smooths out their details, and relates their results to something else. So economics deals with all other industries and with commerce, sometimes availing itself of the aid of chemistry and other sciences and always paying its respects to engineering.

A good part of what is termed political geography is covered also by history, and history would be more rational if it included still more. Political science, ethnography, etc., cultivate other parts of the geographical field and do it more exhaustively than does geography. Mathematical geography is, of course, pure astronomy, except for cartography, which is straight mathematics.

Thus it seems that, with geography dead, all its tangible effects would be claimed by relatives and the estate could be settled up. To say the least, this is disconcerting. The case is not made better by the reflection that a large number of educated persons would see no reason for objecting to such a solution, provided only that geography were preserved for children up to the age when serious study should begin.

Dependence of Geography on Other Sciences for Its Material

At this point, while geography is confessing its limitations, it may as well be owned that, outside the field of exploration, the geographer is mainly dependent on others for his data. Aside from mere location, direction, and distance, almost every fact that he employs belongs quite as much to some other science. In so far as that fact represents a class, the entire class of facts is much more apt to be known exhaustively by the other science than by geography. If the geographer speaks of soils, the agriculturist knows more; if he speaks of mines, the geologist knows more; if the reference be to manufacturing, the economist's knowledge is more thorough, or at least more exhaustive; if the subject is the people, the ethnographer, sociologist, or economist has first-hand knowledge, and the geographer is generally a borrower; and so through the list. With respect to all these data someone else is the original student, the "authority," and the geographer is merely "informed." How often is a geographer called in as an expert, and in what lines? This question is not intended to suggest a wholly negative answer, especially in view of the fact that three of our members are at present in Paris on the staff of the Peace Commission and nearly one-half of our members have been engaged in some expert capacity during the war. It does not follow, of course, that all these were engaged as geographers.

Concession has here been made freely because scholars outside of geography know these facts to be true, and there is nothing to be gained by claiming more than we can defend. If geography is not worth while despite these admissions, its business may as well be wound up.

Need of a Synthetic Areal Science

Reverting now to our former figure of speech, what has geography to say of its proposed demise, the division of its tangible effects and the settling of the estate? The obvious question arises: Would the decedent stay dead? If he were to come to life again, the situation would be embarrassing as between him and his relatives. Assuming that after his decease each of the branches named above as contributing to geography does its task well with respect to Russia, for instance, is there any likelihood that a craving would arise for a synthetic picture of the whole or a critical study of inter-relations? If so, who would satisfy this craving, and who could paint the picture, and what would be its value or standing among scholars?

To begin with, the first question answers itself. There is not one chance in a hundred that ten years would go by without a conscious craving, and an attempt to meet the craving, for a comprehensive view of the areal unit; and not one chance in a million that a century would elapse before such an interest would be the center of a new science. It matters no whit that all concrete data are already organized into other sciences, each more exhaustive and more critical with respect to its own data than the new science; it is absolutely certain that interest in the areal unit as such would clothe itself in appropriate form. It is the *areal relation,* after all, that makes geography.

To dwell on the kind of picture to be painted is not within our present purpose. In part it is a mere assembling of facts from diverse fields, facts joined together by the sole bond of a common locality. Whether we deride or apologize for this aggregation of facts, call it mere description, mere compilation, mere this or mere that (whatever it is, it is always "mere"), this humble task must still be performed before higher work is possible. Description bears the same relation to geography that narration does to history. There can be no sound philosophy in either, based on faulty narration or description.

But data thus assembled from diverse fields do not remain inert. They react on each other like chemicals to produce new compounds, that is, new truths. If the geographer knows less about soils and crops than the agriculturist, less of climate than the meteorologist, less of industry than the economist, less of society than the sociologist, he should still be supreme in this field of secondary compounds which cannot be formed by those who handle the data of one science only.

Value of "Scientific Trespass"

This point needs no elaboration here, but it is worth while recalling a passage from the presidential address of Dr. G. K. Gilbert before this association in this same city ten years ago. In explaining his choice of a subject, he announced himself as an advocate of the principle of "scientific trespass." "The specialist who forever stays at home and digs and delves within his private enclosure has all the advantages of intensive cultivation—except one; and the thing he misses is *cross-fertilization.* Trespass is one of the ways of securing cross-fertilization for his own crops, and of carrying cross-fertilization to the paddock he invades."[1] Gilbert might have added that the geographer is, or should be, the great insect that carries pollen from field to field.

It is not intended here to concede that geography does not concern itself at all in the first-hand search for data. Geographers have, for example, done much for topography. Light on land forms has been by far the leading contribution of American geography (though it is a question whether anyone has contributed to this subject who was not first trained as a geologist).

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[1] *Science*, Vol. 29, p. 122.

REGIONAL GEOGRAPHY THE CORE OF THE SCIENCE

Since geography *is to be,* it is quite right that physiography and climatology and the study of natural resources and even ecology should be of its family and bear its name, but the point here urged is that these are not the things which make geography *necessary* and *inevitable.* They may be necessary to it, but it is not necessary to them. All these might live with geography dead. All these and others belong to the regions of overlap, or ground common both to geography and to some other science, and, having two parents, would not be totally orphaned if one died; but the study of areas as before described belongs solely to geography and is, moreover, an only child. If these figures are somewhat mixed, it may be well to add in plain English that the one thing that is first, last, and always geography and nothing else, is the study of areas in their compositeness or complexity, that is *regional geography.*

It is not to be implied for one brief moment that physiography and the other branches named are not geography. They all become so when directed toward a geographic purpose. But without the touchstone of areal studies, there is nothing to make physiography other than geology, ecology other than botany, the study of natural resources other than economics.

There is, then, in geography this central core which is pure geography and nothing else, but there is much beyond this core which is none the less geography, though it belongs also to overlapping sciences. Here belong physiography and climatology, mathematical and commercial geography. Still, *the seeds are in the core, and the core is regional geography,* and this is why the subject propagates itself and maintains a separate existence. Without regional geography there is no reason why geography should be treated as a separate branch.

This emphasis on areal relations instead of on the "elements" which enter into such relations is, of course, not new. It comes to much the same thing in practice as Ritter's "home of man" or Davis's "physical element and human element" or this and that man's "responses" or Keltie's "science of distributions" or Hettner's "*dingliche Erfüllung der Erdräume*" (material filling of the earth's surface). Nor is it necessary, for the purpose here in hand, to point out that every element (topography, vegetation, climate, etc.) can be treated with reference to its distribution as well as with reference to its types. Such a treatment belongs to regional geography. It should, however, be noted that the study of the distribution of any one element by itself falls somewhat short of that *distinctive* geographic flavor which comes only when the various elements are studied in their inter-relations.

CULTIVATION OF THE CENTRAL THEME OF GEOGRAPHY AS A SAFEGUARD AGAINST ABSORPTION BY OTHER SCIENCES

Let us now go back to the fear above alluded to, that our subject is going to be swallowed by something else. Why this constant dread? The situation at once suggests that we live too much on our borders and not enough in the center. If we dwell mainly in systematic physiography, why should not geology claim us as a vassal? If we live largely in commercial geography, we are in similar danger from economics; and why should it not be so? We can go round the circle with the same logic. A narrowly political geography of boundaries and capitals never had any reason for a separate existence apart from history.

If we are concerned for our independent existence no amount of fortifying our border will take the place of developing our domain. What we need is more and better studies of regions in their entirety, their compositeness, their complexity, their inter-relations of physical, economic, racial, historic, and other factors. No other science can swallow that and live.

UNNECESSARY DISCRIMINATION AGAINST GEOLOGIC TERMS

An illustration of warring on the border instead of farming our domain is found in our curious boycott of terms from other sciences even when needed to make the truth clear. It is not permissible to say that the Cumberland Plateau is co-extensive with the strong ''Carboniferous'' rock (even where that is true) or that the High Plains (of Nebraska and Wyoming) end at the north with certain late ''Tertiary'' formations. It is permissible to say that the Cumberland Plateau is as broad as certain ''resistant'' rocks, but a term which would enable us to locate those rocks on the geologic map is taboo. True, the plateau border can be made out on very large-scale and awkward-to-handle topographic maps, but such maps at best are empirical, while the geologic map is interpretative. Since when has geography become so reactionary? Why must we secrete the geologic map as medieval priests secreted the Bible?

In the debates concerning this point there has been the most curious oversight of common usage. ''Carboniferous'' and its like are dubbed ''geologic time names.'' Such they are indeed, sometimes, just as ''Carboniferous'' might be the name of a man or a horse or a brand of shoe polish—all as irrelevant as geologic time—but the term also designates a body of material (in this case a system of strata) and, more important still, on the geologic map it stands for an *area*. ''Triassic'' indeed connotes geologic time, but the same word designates certain areas on the geologic map of the eastern United States. ''Portage'' is not only a Devonian epoch but a belt on the geologic map of western New York, a belt that must be spoken of and cannot be designated with equal clearness under any other name. In this manner, much use is properly made of geologic terms, not because they are names of epochs but because they are names of areas that force themselves on our notice by certain peculiarities, thus leading to rational explanations. For three-fourths of the United States the geologic map is beyond comparison the one most valuable map for interpreting topographic contrasts between adjacent areas. Why must the words printed on it be classed as dangerous? The answer is: Geography is in danger of being swallowed, and self-preservation is nature's first law.

But "Cumberland Plateau" is a geographic term. How can the geologist say with impunity that the Carboniferous rocks are co-extensive with the Cumberland Plateau? Is not the danger mutual? Is his science not in danger of being swallowed by geography? The answer is: He is not afraid on that borderland where sciences overlap, because his own peculiar domain, which is not overlapped by geography or anything else, is too large and too well cultivated to admit of such fears. Our own safety lies in the same policy.

In our efforts toward self-preservation through purity, we have classed scientific terms as clean and unclean. The latter, such as Archean, Mesozoic, etc., cannot be touched without defilement. So we have built up a whole ceremonial by which we hope to be saved; but not so is salvation found. Its price to geography is no less than the diligent cultivating of its own peculiar field, the doing of something which the world needs and which no other science can do.

Animals have more than one way of evading the jaws of their competitors. The turtle is encased and puts up a good defense but is weak on the offensive. It is the same with the oyster. Others, like the squash bug, owe their safety to a peculiar flavor or odor. Still others specialize in modes of escape. But all such special provision belongs to the weak rather than to the strong. If geography will cultivate its own strength like the large mammals, it will not be necessary for it to encase itself like the oyster or cultivate the peculiar flavor of the squash bug to avoid being eaten.

In so far as there are frontiers between the sciences, let us have them ungarrisoned and let us have free trade. Let there be among sciences the same struggle for existence and law of survival that Darwin found among species. Then every field of study that answers to an intellectual need will have due recognition.

THE SEVERAL SCIENCES DESIGNATED BY THEIR CENTERS, NOT BY THEIR CIRCUMFERENCES

The subject announced for this brief address was "The Circumference of Geography." Presumably enough has been said to show that a science cannot be defined by its circumference. We may designate the center, and that should be enough. Everyone knows what botany is so long as we stay near the center, but where is its farthest limit? Far out in chemistry and medicine and geology, to say the least. And where is the limit of chemistry? Nowhere. Yet chemistry is not hard to define if it be designated by its center instead of by trying to draw its circumference. So the center of geography is the study of *areas,* generally, of course, in relation to man, for human habitation affords the most frequent utilitarian reason for such study and is also the center of the greatest intellectual interest; but the comprehensive study of an uninhabitable region would still be geography.

It is not only the right but the duty of every science to develop all parts of its domain, but it is none the less true of all, as of geography, that their right to separate existence depends on their cultivation of that part of their field which is not overlapped by others. Let there be no misunderstanding; there is no intention of assigning more dignity to one part of the field than to another or of asking any man to turn aside from that which interests him to something else. There is no more inherent worth in a center than in a border. But some of us have a philosophic interest in viewing relationships, and in asking why the whole range of knowledge has grouped itself around certain centers, and what it is that keeps those centers, which have received names, somewhat permanent, and what the advantage is in grouping knowledge around one center rather than another.

Moreover, all of us have a very practical interest in seeing that our own work should not suffer by isolation. We all want our own work to have the advantage of connections, and it is greatly to our interest that somebody should cultivate certain central fields even though most of us work on the borders. The logic of events, if no other logic, has brought together in this association a group of men of rather diverse interests. We are disposed to think that this is not a mere chance but that something fundamental underlies our union. Much that interests the individual does not concern the whole; but we feel more or less intelligently that there is profit in this intercourse and we want the relation to be closer. If there is a class of studies that will make our separate fields more important and more interesting to others and enable us to profit more by our association, we want to know what that class is and to encourage it.

Beside those who are, first and last, geographers, our association contains geologists, topographers, geodesists, meteorologists, ecologists, zoölogists, geophysicists, historians, and economists. The list is not intended to be complete. We have joined ourselves together evidently expecting to find a common interest. Where is the common ground on which such diversity can meet? Interest in places, areas, regions is the common bond.

This quasi-philosophical study of relationships is therefore important to those whose privilege it is to direct research or to organize education. If men in such position decide with eyes open that physiography and commercial geography and anthropogeography and the rest should not be merely geology, economics, ethnography, etc., they must act accordingly. The character of these subjects can not be controlled by ceremonial law. The effective way is to set in the midst of them a great light, the light which comes alone from the comprehensive, rational, systematic study of regions.